

CLAIMS

What is claimed is:

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1. A stent in the form of a thin-walled, multi-cellular, tubular structure having a longitudinal axis, the stent comprising:

a multiplicity of sets of strut members, each set of strut members being longitudinally separated each from the other and each set of strut members forming a closed, ring-like cylindrical section of the stent,

10 each set of strut members consisting of a multiplicity of strut elements, each strut element consisting of one curved end strut that is joined at a junction point to one diagonal strut;

a multiplicity of sets of flexible links with each set of flexible links connecting two of the multiplicity of sets of strut members,

15 each set of flexible links consisting of a multiplicity of individual flexible links, each individual flexible link being a single undulating structure that extends generally in the longitudinal direction that is parallel to the stent's longitudinal axis the shape of at least some of the individual flexible links being in the shape of a letter "Z" z-links, wherein each of said links has at least two generally curved segments, wherein the endpoints of each curved element of the z links lie generally in a circumferential direction.

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2. The stent of claim 1 wherein each individual flexible link has two ends, each one of the two ends being fixedly attached to the multiplicity of strut elements thereon.

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3. The stent of claim 1 wherein there are adjacent sets of strut members which are in-phase with one another.

4. The stent of claim 1 wherein there are adjacent sets of strut members which are out-of-phase with one another.

5. A stent of approximately cylindrical shape comprising a longitudinal axis and a radial axis, wherein the cross-section perpendicular to the longitudinal axis defines a circumference, the stent comprising:

a plurality of sets of circumferential members, each set of members being longitudinally separated each from the other and each set of members forming a closed, ring-like cylindrical section of the stent, each set of members consisting of a multiplicity of elements, each element consisting of one curved end;

a plurality of sets of flexible links with each set of flexible links connecting two of the elements, each set of flexible links consisting of a multiplicity of individual flexible links, each individual flexible link being a single undulating structure that extends generally along a circumference each individual flexible link has two ends, each one of the two ends being fixedly attached to the multiplicity of strut elements at an attachment point thereon; and

the shape of at least some of the individual flexible links being circumferentially expandable;

wherein each of said links has at least 4 curved segments.

6. A stent of approximately cylindrical shape comprising a longitudinal axis and a radial axis, wherein the cross-section approximately perpendicular to the longitudinal axis defines a circumference, the stent comprising:

a plurality of sets of circumferential members, wherein each set of members forming a closed, ring-like configuration about the circumference

and each set of members is longitudinally separated each from the other, wherein each set of members consists of a multiplicity of elements, each element consisting of one curved end;

5 a plurality of flexible links, each individual flexible link being a single undulating structure that extends generally along a circumference and each individual flexible link has two ends, each one of the two ends being fixedly attached to the multiplicity of strut elements at an attachment point thereon; and

10 wherein at least some of the individual flexible links when viewed in elevation are formed in the shape of the letter "Z".

20 7. A stent in the form of a thin-walled, multi-cellular, tubular structure having a longitudinal axis, the stent comprising a multiplicity of circumferential sets of strut members, each set of strut members being longitudinally separated each from the other, each set of strut members being connected to adjacent sets of strut members by longitudinal connecting links, each individual connecting link being a single undulating structure with at least a portion of said connecting links generally extending along a circumference, wherein each single undulating structure is in the shape of a letter "Z";

wherein each of said links has at least two generally curved segments placed generally opposite each other in the longitudinal direction.

25 8. The stent of claim 7 wherein upon expansion the centers of curvature of the two curved elements undulate around each other so that a link extends parallel to the circumference of the stent.

9. A stent of approximately cylindrical shape comprising a longitudinal axis and a radial axis, wherein the cross-section approximately perpendicular to the longitudinal axis defines a circumference, wherein there is an unexpanded state and an expanded state, the stent comprising:

5 a plurality of sets of circumferential members, wherein each set of members forms a closed, ring-like configuration about the circumference and each set of members is longitudinally separated each from the other, wherein each set of members consists of a multiplicity of elements, each element consisting of one curved end;

10 a plurality of flexible links, each flexible link being a single undulating structure and each individual flexible link having two ends, each individual flexible link has two ends, each one of the two ends being fixedly attached to the multiplicity of strut elements at an attachment point thereon;

15 wherein pairs of circumferential members and flexible links define openings, which openings possess an area; and

wherein the circumferential distance of the first and second portion of the flexible links increases on expansion.

10 20 10. A stent of approximately cylindrical shape comprising a longitudinal axis and a radial axis, wherein the cross-section approximately perpendicular to the longitudinal axis defines a circumference, wherein there is a normal state and an expanded state, the stent comprising:

25 a plurality of sets of circumferential members, wherein each set of members forms a closed, ring-like configuration about the circumference and each set of members is longitudinally separated each from the other, wherein each set of members consists of a multiplicity of elements, each element consisting of one curved end;

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